WHAT IS CLAIMED IS:

1. A non-human meat product for consumption comprising non-human muscle cells grown *ex vivo*.

2. The non-human meat product in claim 1 further comprising:

a support structure; and

wherein the non-human muscle cells are attached to the support structure.

3. The non-human meat product in claim 1 wherein the non-human muscle cells are skeletal muscle cells.

4. The non-human meat product in claim 1 wherein the non-human muscle cells are derived from animals selected from the group consisting of mammals, birds, fishes, invertebrates, reptiles, and amphibians.

5. The non-human meat product in claim 1 wherein the non-human meat product is substantially free from harmful microbial contamination.

6. The non-human meat product in claim 1 wherein the non-human muscle cells are derived from pluri-potent or toti-potent cells.

7. The non-human meat product in claim 1 wherein the non-human muscle cells have been exposed to an electric current.

8. The non-human meat product in claim 1 further comprising non-human adipocyte cells grown *ex vivo*.

9. The non-human meat product in claim 8 wherein the non-human adipocyte cells are trans-differentiated from non-human myoblasts.

10. The non-human meat product in claim 8 wherein the non-human adipocyte cells are derived from pluri-potent or toti-potent non-human stem cells.

11. The non-human meat product in claim 1 further comprising non-human cartilage cells grown *ex vivo*.

12. The non-human meat product in claim 10 wherein the non-human cartilage cells are positioned between a support structure and the non-human muscle cells.

13. The non-human meat product in claim 10 wherein the non-human cartilage cells have been exposed to mechanical stress.

14. A method of producing non-human meat products for consumption comprising the steps:

culturing non-human muscle stem cells *ex vivo*;

seeding the non-human muscle stem cells onto a support structure; and

growing the non-human muscle stem cells to produce a non-human meat product.

15. The method in claim 13 wherein the step of growing the non-human muscle stem cells comprises:

differentiating the non-human muscle stem cells into different types of non-human muscle cells.

16. The method in claim 14 further comprising the step:

exposing the non-human muscle cells to an electric or oscillating current.

17. The method in claim 13 further comprising the step:

adding nutrients to be incorporated into the non-human meat products.

18. The method in claim 13 wherein the non-human muscle cells are derived from animals selected from the group consisting of mammmals, birds fishes, invertebrates, reptiles, and amphibians.

19. The method in claim 13 wherein the non-human meat product is substantially free from harmful microbial contamination.

20. A method of producing non-human meat for consumption comprising the steps:

co-culturing non-human muscle cells and non-human fat cells *ex vivo*;

seeding the non-human muscle cells and the non-human fat cells to a support structure; and growing the non-human muscle cells and the non-human fat cells to produce a non-human meat product.

21. A method of producing non-human meat for consumption comprising the steps of:

culturing non-human muscle stem cells *ex vivo*;

seeding the non-human muscle stem cells to a support structure;

treating the non-human muscle stem cells with fatty acids to trans-differentiate the non-human muscle stem cells into adipocytes; and

growing the adipocytes to produce a non-human meat product.

22. A method of producing non-human meat products for consumption comprising the steps:

culturing non-human cartilage cells *ex vivo*;

seeding the non-human cartilage cells to a support structure;

culturing non-human muscle cells together with the non-human cartilage cells on or around the support structure; and

growing the non-human muscle cells to produce a non-human meat product.

23. The method in claim 20 wherein the non-human cartilage cells have been exposed to mechanical stress.